Given the data in the vehicle speed problems (see sections 3.3, 3.4 homework), we can plot a few functions representing the position data (see Figure 1). The Hermite (black) and spline (red) interpolations exactly pass through the position data points. On the other hand, the linear approximation (blue) does not exactly pass through a single of these points.
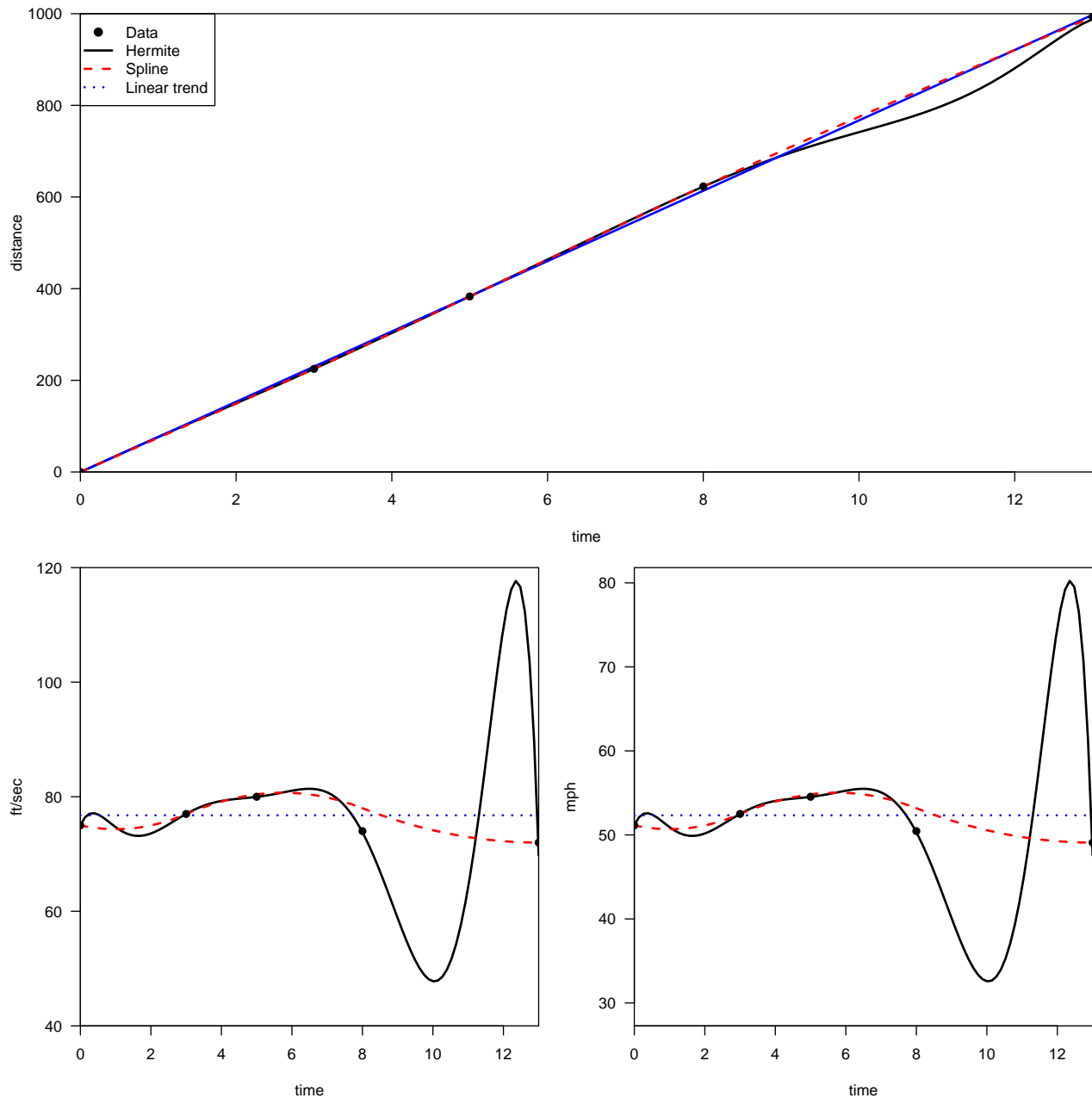

Figure 1: **Top:** Data and interpolating and approximating polynomials. **Bottom:** Speed data and predicted speed by interpolating and approximating polynomials (**left:** feet per second and **right:** miles per hour).

There are a variety of factors to weigh when choosing a method for representing data by a function.